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ABSTRACT

Using a sample of A-share listed firms in China during the 2003–2012 period, this paper investigates the effect of accounting conservatism on trade credit, taking changes in monetary policy into account. We find that corporations with higher accounting conservatism obtain more trade credit and that accounting conservatism has a greater influence on trade credit under tight monetary policy. Furthermore, the backgrounds of the supplier and customer influence the positive relationship between accounting conservatism and trade credit. This influence is more evident when a company is privately owned and has greater market power, and less evident when the supplier or customer is the controlling shareholder.

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1. Introduction

As a basic feature of accounting reporting, the main role of accounting conservatism is to promote the signing of debt contracts by preventing an enterprise from over-reporting its assets and thus damaging the interests of creditors (Watts, 2003; Jiang and Zhang, 2007). The creditors of an enterprise are mainly banks and trading partners (i.e. suppliers and customers), so two types of debt contracts exist: bank credit contracts and trade credit contracts.

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Previous studies focus on the effect of accounting conservatism on bank credit (Zhang, 2008; Rao and Jiang, 2011; Zhu, 2011; Cheng and Liu, 2013), with less attention being paid to trade credit (Hui et al., 2012). However, trade credit is widely used in both developed and developing countries. In the UK, for example, trade credit accounts for 70% of short-term debt and 55% of credit loans (Kohler et al., 2000). Rajan and Zingales (1995) show that on average, trade credit accounted for 17.8% of the total assets of American companies in 1991, and for over 25% of those of their German, Italian and French counterparts. Although China's financial system is not sound, trade credit plays a decisive role in its national economy.

Focusing on accounting conservatism and changes in monetary policy, we investigate how these two elements affect trade credit and discuss the different effects of accounting conservatism on trade credit for trading parties with different backgrounds.

Specifically, we aim to answer the following questions. First, do accounting conservatism policies affect trade credit financing? The literature on trade credit is currently based mainly on the theories of alternative financing and market power. From the perspective of demand, the theory of alternative financing holds that credit rationing prevents some companies from obtaining sufficient bank lending. They therefore turn to trade credit financing, despite having to bear the higher costs of trade credit (Petersen and Rajan, 1997; Biais and Gollier, 1997). From the supply perspective, market power theory considers that due to market power, suppliers (customers) will take the initiative to provide a large amount of low-cost trade credit to a company to promote sales (supplies) (Summers and Wilson, 1999; Fisman and Raturi, 2004; Van Horen, 2005). Regardless of what theory applies, a company seeking trade credit needs to sign a debt contract with a supplier or a customer. Hui et al. (2012) argue that as accounting conservatism can recognize losses in a timely fashion, it can protect the interests of customers and suppliers when signing contracts and reduce potential losses from such transactions. We therefore examine whether companies with higher accounting conservatism obtain more trade credit.

Second, how does accounting conservatism influence trade credit when monetary policy changes? In a period of tight monetary policy, the problem of credit discrimination, or credit rationing, becomes worse and it becomes harder for companies to obtain bank loans. Meanwhile, suppliers or customers become more cautious about providing trade credit because of increasing uncertainty in the economic environment. We therefore investigate whether accounting conservatism has a greater effect on obtaining trade credit when the demand for trade credit increases and the supply reduces. Third, does accounting conservatism have different effects on trade credit for trading parties with different backgrounds? Previous studies find that enterprises with different levels of market power and different types of ownership obtain trade credit differently (Lu and Yang, 2011; Zhang et al., 2012), and that the contractual relationship in transactions between related parties can affect the choice of trade credit mode (Liu et al., 2009). We therefore investigate whether the different backgrounds of companies and their suppliers or customers affect the relationship between accounting conservatism and trade credit.

To test these research questions, we use data for Chinese listed companies during 2003–2012. First, we find that companies with higher accounting conservatism obtain more trade credit. Second, accounting conservatism has a greater effect on trade credit under tight monetary policy. Third, the positive relationship between accounting conservatism and trade credit is related to the backgrounds of the supplier and the customer. The influence on this positive relationship is most marked when a company is privately owned and has greater market power, and less evident when a supplier or customer is the controlling shareholder.

The contributions of this paper are as follows. First, previous research on trade credit focuses on the motives for trade credit, but we explore the operational mechanism of accounting conservatism, a factor in obtaining trade credit, from the perspective of debt contracting. Second, with respect to monetary policy, we investigate the effect of accounting conservatism on trade credit under different monetary policies, which enriches the literature on macro-economic policy and micro-enterprise behavior. Finally, taking the different backgrounds of the parties into account, we discuss the joint effect of corporate characteristics, associated relationships and accounting conservatism in the contracting process, which expands the research on trade credit.

The rest of this paper is structured as follows. The second section briefly outlines the previous research with respect to trade credit and accounting conservatism, and outlines our research hypotheses; the third section explains the process of sample selection and the establishment of the model; the fourth section presents the

research results and empirical analysis; the fifth section further discusses the results of sub-samples according to the different backgrounds of trading parties; and the sixth section provides the conclusions.

2. Literature review and research hypotheses

2.1. Accounting conservatism and trade credit

Accounting earnings information plays an important role in the process of signing contracts between enterprises and suppliers or customers. According to [Williamson \(1979\)](#), transactions can be divided into discrete transactions, long-term transactions and relational transactions. A discrete transaction involves a one-time contract, and the rights and obligations of the parties to the contract can be clearly defined. In a long-term transaction the contract is long-term and incomplete, and cannot cover all future uncertainties. In a relational transaction the contract is also long-term and involves special investment. From the perspective of reducing transaction costs, transactions between enterprises and suppliers or customers are usually long-term or relational transactions. Due to the incompleteness of long-term contracts, firms are more likely to adopt opportunistic behavior. In particular, in relational transactions in which the suppliers and customers often require special asset investment, if the company cancels the transaction because of financial difficulties or other reasons, the suppliers and customers will incur high switching costs ([Hui et al., 2012](#)). Suppliers and customers are able to observe very recent changes in the operating conditions of a company through their business dealings, so have information advantages over banks and other credit institutions ([Lu and Yang, 2011](#)). However, with respect to opportunity costs and sunk costs in long-term transactions, suppliers and customers still consider a company's overall profitability when judging the prospects for long-term cooperation with that enterprise and when deciding whether or not to trade with a particular company or what type of transaction to provide to that company.

As suppliers and customers, unlike shareholders, are the main creditors in trade credit transactions, their profit function is asymmetric. That is, they bear the risk of enterprise bankruptcy but do not gain any appreciation in the value of assets, which leads them to pay greater attention to bad news regarding a company's performance than to good news. Meanwhile, company managers have an information advantage over other stakeholders and tend to hide any bad news for reasons of self-interest. The interests of suppliers and customers will thus be damaged through information asymmetry when managers report relatively little relating to bad news for a company.

How, then, can the interests of suppliers and customers be protected in a transaction? [Hui et al. \(2012\)](#) confirm that accounting conservatism is one feasible mechanism for providing such protection. The conservatism principle stipulates that an enterprise cannot recognize a potential benefit, but should recognize a potential loss in a timely fashion ([Basu, 1997](#)). Accordingly, the interests of suppliers and customers can be protected through the following two mechanisms.

First, by inhibiting excessive investment and insufficient investment, accounting conservatism can improve the future profitability of a company, ensuring long-term cooperation with its suppliers and customers. Accounting conservatism results in investment losses being reflected in management reporting as soon as possible, so that shareholders receive timely signals that the net present value of an investment project is negative, which inhibits excessive investment ([Ball and Shivakumar, 2005](#)). At the same time, accounting conservatism can help to alleviate underinvestment by reducing the financing costs of the enterprise ([Garcia Lara et al., 2011](#)). As a result, the higher the accounting conservatism of a company, the higher the company's future profitability, and the lower the possibility of future special project expenditure ([Ahmed and Duellman, 2011](#)). A higher profitability for a company can ensure sustainable cooperation relationships with suppliers and customers, who are then willing to provide more trade credit to that company based on the expectation of future long-term cooperation.

Second, accounting conservatism can help suppliers and customers to promptly identify poor performance by a company. Taking loan contracts as the object of study, [Zhang \(2008\)](#) concludes that higher accounting conservatism makes it easier for companies to violate restrictive clauses in debt contracts, and helps creditors to promptly enforce or re-sign contracts. Therefore, the higher the accounting conservatism, the lower the loan interest rate paid by the company. Similarly, accounting conservatism can also reduce information asymmetry,

protect the interests of suppliers and customers to a greater extent, and help both parties to a contract to establish cooperative relations with mutual trust, such that suppliers and customers are willing to accept a certain degree of risk and provide more trade credit. Conversely, if a company's accounting reports are less conservative and the interests of suppliers and customers cannot be protected, the payment terms required by the suppliers and customers will be more stringent because they wish to protect their own interests and safely control risk. Accordingly, they will not provide a large amount of trade credit.

Based on the above analysis, we propose the following hypothesis:

H1. Corporations with higher accounting conservatism obtain more trade credit.

2.2. Monetary policy, accounting conservatism and trade credit

Monetary policy is important to governments as a means of intervening in and adjusting the macro-economy. When monetary policy changes from loose to tight, enterprises face a different macroeconomic environment. The behavior of enterprises, creditors and shareholders may therefore also change (Gertler and Gilchrist, 1994). The effect of monetary policy on a micro-enterprise is first reflected in changes in the information environment. During a period of monetary tightening, the degree of future information uncertainty that companies will face increases. Using panel data for listed companies in the UK for 1970–1990, Beaudry et al. (2001) find that in the 1980s, frequent changes in monetary policy led to the total variance of investment in listed corporations being significantly smaller than that in the 1970s. This reflects the characteristic that enterprise investment behavior tends to be uniform when facing uncertainty due to monetary policy.

Due to imperfections in the capital market, the problem of information asymmetry and related contract cost is common within actual economic operations. Banks play an irreplaceable role in alleviating information asymmetry, dispersing risk and reducing transaction costs in the credit market. Monetary policy can influence the availability of bank credit, and accordingly affect the behavior of enterprises, creditors and shareholders. Much empirical literature provides evidence that a tight monetary policy affects corporate financing. The literature indicates that a tight monetary policy reduces the funds available to banks to loan out, increases the difficulty of obtaining loans and as a result affects the investments made by enterprises (Kashyap et al., 1993; Ye and Zhu, 2009). In addition, increasing loan interest rates raises the capital cost to the enterprise (Mojon et al., 2002). In China, financing channels for enterprises are relatively less common than in other countries, and bank loans represent the main financing channel. At the same time, banking in China is very vulnerable to the actions and regulations of the government. As the People's Bank of China tightens monetary policy by raising the deposit reserve rate, the benchmark interest rate and the discount rate, the real economy is affected through the credit channel, reflected specifically in a significant reduction in the amount of corporate credit financing (Ye and Zhu, 2009). Accordingly, under a tight monetary policy, an enterprise's external financing costs increase, the scale of external financing is limited and the problem of credit rationing worsens.

The worsening of credit rationing makes it difficult for an enterprise to obtain bank credit financing, and it becomes more dependent on trade credit financing. As the demand for trade credit increases while the funds available decrease due to the tight monetary policy, trade credit becomes a scarce resource. In such a period of monetary tightening, suppliers and customers, as providers of trade credit, will be more concerned about whether the assets of the enterprise can pay off debt. They will thus require a more conservative corporate accounting policy to enable them to adjust credit policies sooner. Under this premise, relative to a period of monetary easing, suppliers and customers in a period of monetary tightening will be more willing to provide trade credit for enterprises with higher accounting conservatism, and trade credit will then flow more intensively into these enterprises.

Based on the above analysis, we propose the following hypothesis:

H2. During a period of monetary tightening, corporations with higher accounting conservatism obtain more trade credit.

3. Research design

3.1. Sample and data

Using A-share listed companies in China during 2003–2012 as the basis and after removing companies in the financial industry and companies with missing data, the sample comprises 12,121 firm-year observations of 1880 companies. Data on corporate governance are from the CCER database and other data are from the CSMAR database. All observations in the top 1% and bottom 1% for continuous variables are winsorized to control for outliers, and *t*-values are clustered at the firm level.

3.2. Research design

3.2.1. Trade credit (TC)

With reference to [Lu and Yang \(2011\)](#) and [Zhang et al. \(2012\)](#), the following formula is used to calculate TC: $TC = (\text{accounts payable} + \text{notes payable} + \text{advances from customers}) / \text{total assets}$.

3.2.2. Accounting conservatism (C-Score)

New or improved methods have appeared regularly since [Basu \(1997\)](#) used the inverse regression method to measure accounting conservatism, such as the accruals/cash-flows regression method of [Ball and Shivakumar \(2005\)](#), the accrual measure of [Givoly and Hayn \(2000\)](#), the measure of [Beaver and Ryan \(2000\)](#) based on the book-to-market ratio, and the C-Score method of [Khan and Watts \(2009\)](#). As our analysis requires a firm-year measure of accounting conservatism, the C-Score method is adopted. The C-Score is calculated as follows:

$$\begin{aligned} \frac{X_{i,t}}{P_{i,t-1}} &= \beta_0 + \beta_1 DR_{i,t} + (\mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEV_{i,t}) \times RET_{i,t} \\ &\quad + (\lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEV_{i,t}) \times DR_{i,t} \times RET_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 MB_{i,t} + \beta_6 LEV_{i,t} \\ &\quad + \beta_7 DR_{i,t} \times SIZE_{i,t} + \beta_8 DR_{i,t} \times MB_{i,t} + \beta_9 DR_{i,t} \times LEV_{i,t} \\ G\text{-Score} &= \beta_2 = \mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEV_{i,t} \\ C\text{-Score} &= \beta_3 = \lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEV_{i,t} \end{aligned}$$

$\frac{X_{i,t}}{P_{i,t-1}}$ is firm *i*'s earnings per share divided by its stock price at the beginning of year *t*, adjusted by the annual mean of the sample. $RET_{i,t}$ is the stock return of firm *i* minus the market return in year *t* (from May in year *t* to April in year *t* + 1). $DR_{i,t}$ is a dummy for the stock return of firm *i* in year *t*, which equals 1 when $RET_{i,t} \geq 0$, and 0 otherwise. $SIZE_{i,t}$ is the logarithm of total assets. $MB_{i,t}$ is the book-to-market ratio, which is firm *i*'s total market value divided by its book value for owners' equity at the end of year *t*. $LEV_{i,t}$ is the ratio of total liabilities to total assets.

C-Score measures the timeliness of bad news (i.e. the level of conservatism). The higher the value of C-Score, the higher the degree of accounting conservatism.

3.2.3. Tight monetary policy (MP)

Based on the work of the [Macro Group, CCER, PKU \(2008\)](#), monetary liquidity can be measured on three bases: excess money, money stock and the interest rate in the short-term lending market. The measures based on excess money include the situation in which the money growth rate exceeds the nominal GDP growth rate ([Baks and Kramer, 1999](#)), and that in which the money growth rate exceeds the actual GDP growth rate and the price increase rate ([Yi, 1991](#)). The measures based on money stock include the growth rate of *M2*, the difference in the growth rates of *M1* and *M2* and the ratio of *M1/M2*. The measures based on the interest rate in the short-term lending market include the one-year lending rate ([Li and Wang, 2011](#)), the bond spread and so on.

Of these measurement bases, only the first takes money demand into account. According to a general economic analysis, there will be excess monetary liquidity if the supply of money is greater than the demand, and a shortage of money liquidity when the supply of money is less than the demand. Accordingly, the first measurement basis is adopted here.

We use the nominal GDP growth rate to measure the currency required for economic development, and the *M2* growth rate to measure the supply of money. Thus, the difference between the nominal GDP growth rate and the *M2* growth rate reflects the degree of monetary liquidity shortage. If the difference is positive, this indicates that the current money supply is insufficient and a period of monetary tightening applies, and $MP = 1$; if the difference is negative, this indicates that the current money supply is adequate and a period of monetary easing applies, and $MP = 0$ (Li and Wang, 2011). The differences between the nominal GDP growth rate and the *M2* growth rate are $-0.079, 0.033, -0.023, 0.013, 0.061, 0.004, -0.199, -0.012, 0.005$ and -0.045 from 2003 to 2012. Therefore, 2004, 2006, 2007, 2008 and 2011 are defined as monetary tightening periods, while the other years are defined as monetary easing periods.

3.2.4. Control variables

The control variables are CFO, LIQ, LOAN, AGE, SIZE, EBIT, GROWTH, MPOWER, STATE and GOVINDEX.

For those demanding trade credit, the adequacy of internal cash flows and the availability of bank loans are important factors affecting trade credit financing, according to pecking order theory and alternative financing theory. Therefore, we use CFO (net cash flow from operating activities/total assets) to measure an enterprise's ability to generate cash, LIQ (current assets/total assets) to measure the liquidity ratio and LOAN (bank loans/total assets) to measure the proportion of bank loans to total assets.

Those supplying trade credit will take a firm's establishment age (AGE), size (SIZE), profitability (EBIT) and growth ability (GROWTH) into account when providing trade credit.

In addition, the amount of trade credit that an enterprise obtains reflects its bargaining power in the industry. The stronger the market position, the more trade credit may be obtained (Fisman and Raturi, 2004; Zhang et al., 2012). MPOWER is used to measure the market position of an enterprise. If the market share of the enterprise, that is, the ratio of the firm's sales revenue to the industry's sales revenue, is greater than the industry median, then MPOWER equals 1, and 0 otherwise.

The existing literature shows that the amount of trade credit obtained by state-owned enterprises is significantly higher than for non-state-owned enterprises, because state-owned enterprises have good credit ratings and no constraints on financing (Liu et al., 2009; Lu and Yang, 2011). Thus, STATE is used to control for the effect of the nature of firm ownership, which equals 1 if a firm is state-owned, and 0 otherwise.

Finally, the effect of corporate governance is also controlled for in our analysis. With reference to the approach of Bai et al. (2005) and Zhang and Lu (2012), we use the shareholding ratio of the first major shareholder (TOP1), the ownership concentration from the second to the tenth shareholders (Cstr2_10), the shareholding ratio of senior management (Mana), whether the board chairman and the CEO are the same person (Dual), the proportion of independent directors on the board (Indratio), whether there is a listing in the B-share or H-share market at the same time (HB_share, which equals 1 if listed at the same time, and 0 otherwise) and whether there is ownership by a parent company (Parent, which equals 1 if owned, and 0 otherwise) to construct a corporate governance index through the method of principal component analysis.¹ The first principal component obtained from the analysis is defined as an indicator of corporate governance level, GOVINDEX. Specific definitions of the variables are given in Table 1.

3.3. The empirical model

To analyze whether accounting conservatism affects an enterprise's trade credit financing behavior, and to test the effect of accounting conservatism on trade credit under different monetary policies, we use the following models²:

¹ Bai et al. (2005) also consider the nature of firm ownership when constructing a corporate governance index. Previous studies find that the amount of trade credit obtained by state-owned enterprises is significantly higher than for non-state-owned enterprises, and the direction of this influence is not consistent with the directions of the other corporate governance factors for trade credit; thus, we examine the nature of firm ownership alone.

² To avoid the problem of endogeneity, we use lagged C-Score values in the model to measure accounting conservatism. The results are not affected if current C-Score values are used.

Table 1
Variable definitions.

Type	Symbol	Name	Definition
Explained variable	TC	Trade credit	(Accounts payable + notes payable + advances from customers)/total assets
Explanatory variable	C-Score	Accounting conservatism	Measured using the C-Score method (Khan and Watts, 2009)
	MP	Tight monetary policy	If $\Delta GDP/GDP_{t-1} - \Delta M2/M2_{t-1} > 0$, then $MP = 1$; otherwise $MP = 0$
Controlled variable	MPOWER	Market power	If a company's market share (sales revenue/entire industry sales revenue) is greater than the industry median, $MPOWER = 1$. Otherwise, $MPOWER = 0$
	STATE	Nature of firm ownership	If a company is state-owned, $STATE = 1$. Otherwise, $STATE = 0$
	LOAN	Bank loan	(Short-term loans + long-term loans)/total assets
	AGE	Age of the company	The natural logarithm of the years since the company was established
	SIZE	Scale of the company	The natural logarithm of total assets at the end of the year
	CFO	Cash flows of operating	Net cash flows from operating activities/total assets
	LIQ	Current assets	Current assets/total assets
	EBIT	Profitability	Earnings before interest and tax/total assets
	GROWTH	Growth rate	(Operating income for the year – operating income for the previous year)/operating income for the previous year
	GOVINDEX	Index of corporate governance	The first principal component obtained through the method of principal component analysis using the following seven variables: the shareholding ratio of the first major shareholder (TOP1), the ownership concentration from the second to the tenth shareholders (Cstr2_10), the shareholding ratio of senior management (Mana), whether the board chairman and the CEO are the same person (Dual), the proportion of independent directors on the board (Indratio), whether there is a listing in the B-share or H-share market at the same time (HB_share) and whether or not there is ownership by a parent company (Parent).
	YEAR	Year	Year dummy variables
	IND	Industry	Industry dummy variables

$$TC_{i,t} = \beta_0 + \beta_1 C\text{-Score}_{i,t-1} + \sum \beta_n \text{Controlvariables}_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$TC_{i,t} = \beta_0 + \beta_1 C\text{-Score}_{i,t-1} + \beta_2 MP_{i,t} + \beta_3 MP_{i,t} \times C\text{-Score}_{i,t-1} + \sum \beta_n \text{Controlvariables}_{i,t} + \varepsilon_{i,t} \quad (2)$$

If H1 is supported, the coefficient for C-Score, β_1 , should be significantly positive. In addition, β_3 should also be significantly positive if H2 is supported.

4. Empirical analysis

4.1. Descriptive statistics

Table 2 lists the descriptive statistics for all of the variables. The mean of trade credit is 16.9% and the median is 13.8%. The mean and median of C-Score are 0.043 and 0.030 respectively, implying that the sample companies implemented conservative accounting policies during 2003–2012. The mean of monetary policy (MP) is 48.1% and the standard deviation is 50%, showing that the observations are relatively uniform under tight monetary policy and loose monetary policy. The maximum and minimum of SIZE are 25.33 and 19.41 respectively, and the maximum and minimum of EBIT are 0.232 and –0.275 respectively, which are reasonable.

Table 3 gives the correlations between the variables. There is a significant positive correlation between TC and C-Score, showing that the higher an enterprise's accounting conservatism, the more trade credit it obtains. The relationship between TC and C-Score is consistent with our expectations. The correlations of TC with

Table 2
Descriptive statistics.

Variables	<i>N</i>	Mean	Min	<i>Q1</i>	Median	<i>Q3</i>	Max	Std
TC	12,121	0.169	0.005	0.074	0.138	0.232	0.581	0.125
C-Score	12,121	0.043	−0.114	−0.002	0.030	0.078	0.286	0.077
MP	12,121	0.481	0	0	0	1	1	0.500
MPOWER	12,121	0.555	0	0	1	1	1	0.497
STATE	12,121	0.652	0	0	1	1	1	0.477
LOAN	12,121	0.218	0	0.091	0.211	0.324	0.641	0.154
AGE	12,121	2.808	1.099	2.639	2.833	2.996	3.555	0.273
SIZE	12,121	21.70	19.41	20.89	21.57	22.33	25.33	1.145
CFO	12,121	0.050	−0.201	0.007	0.049	0.094	0.265	0.079
LIQ	12,121	0.526	0.081	0.368	0.533	0.684	0.956	0.211
EBIT	12,121	0.051	−0.275	0.028	0.051	0.080	0.232	0.069
GROWTH	12,121	0.196	−0.671	−0.007	0.140	0.313	2.726	0.433
GOVINDEX	12,121	−0.222	−2.309	−1.012	−0.375	0.357	4.637	1.219

MPOWER and STATE are also significantly positive, indicating that companies with a strong market position or state ownership obtain more trade credit. The relationship between LOAN and TC is significantly negative, implying that if an enterprise can obtain more loans from banks, it will reduce its demand for trade credit, thus confirming financing substitution theory.

4.2. Regression analysis

4.2.1. Accounting conservatism and trade credit

First, we investigate the effect of accounting conservatism on trade credit, with the results of the regression analysis provided in Table 4.

In regression (1), we use TC_t , i.e. (accounts payable + notes payable + advances from customers)/total assets, as the dependent variable. The coefficient for $C\text{-Score}_{t-1}$ is 0.379, which is significantly positive at the 1% level, suggesting that the higher the accounting conservatism, the more trade credit is obtained from the supplier and the customer. High accounting conservatism can reduce the degree of information asymmetry to more effectively protect the interests of suppliers and customers, and help trading parties to establish cooperative relations with mutual trust, such that the supplier and the customer are willing to accept a certain degree of risk and provide more trade credit. Thus, hypothesis 1 is confirmed.

The coefficient for $MPOWER_t$ is significantly positive, indicating that enterprises with stronger market positions can obtain more trade credit. The coefficient for $STATE_t$ is significantly positive, indicating that state-owned enterprises can obtain significantly more trade credit than private enterprises. The relationship between LOAN and TC is significantly negative, showing that the more bank credit obtained, the less trade credit obtained. There is a specific substitution relationship between bank credit and trade credit, in line with the theory of financing substitution.

4.2.2. Monetary policy, accounting conservatism and trade credit

We further investigate the effect of accounting conservatism on trade credit in the context of monetary policy changes. The results of this regression analysis after adding $MP_t \times C\text{-Score}_{t-1}$ to the model are provided in Table 4.

The results of regression (2) show that $C\text{-Score}_{t-1}$ is still significantly positive and $MP_t \times C\text{-Score}_{t-1}$ is too, indicating that accounting conservatism is more important under tight monetary policy. In a period of monetary tightening, trade credit becomes a type of scarce resource. Thus, suppliers or customers become more cautious about providing trade credit due to increasing uncertainty in the economic environment. In this situation, an enterprise with a higher level of accounting conservatism has more advantages in terms of obtaining trade credit provided by suppliers or customers. That is, relative to a period of monetary easing, suppliers and customers are more willing to provide trade credit to enterprises with higher accounting conservatism in a period of monetary tightening. Thus, hypothesis 2 is confirmed.

Table 3
Correlation matrix.

	TC	C-Score	MP	MPOWER	STATE	LOAN	AGE	SIZE	CFO	LIQ	EBIT	GROWTH	GOVINDEX
TC		0.129***	0	0.276***	0.030***	−0.133***	−0.026***	0.159***	−0.038***	0.451***	−0.074***	0.112***	−0.031***
C-Score	0.133***		0.206***	−0.030***	0	0.264***	0.127***	−0.128***	−0.081***	0.048***	−0.170***	−0.037***	0.028***
MP	0	0.160***		0.008	0.033***	0.041***	0.045***	−0.036***	−0.021***	−0.028***	0.035***	0.073***	−0.014
MPOWER	0.264***	−0.054***	0.008		0.182***	0.071***	0.001	0.641***	0.110***	0.041***	0.198***	0.182***	−0.218***
STATE	0.045***	−0.012	0.033***	0.182***		0.036***	0.075***	0.219***	0.049***	−0.170***	−0.052***	0.041***	−0.732***
LOAN	−0.195***	0.277***	0.037***	0.059***	0.035***		0.124***	0.142***	−0.189***	−0.265***	−0.237***	0	−0.032***
AGE	−0.004	0.146***	0.074***	0.027***	0.117***	0.149***		−0.003	−0.031***	−0.072***	−0.106***	−0.075***	−0.041***
SIZE	0.168***	−0.157***	−0.043***	0.596***	0.226***	0.123***	−0.027***		0.055***	−0.079***	0.176***	0.140***	−0.260***
CFO	−0.003	−0.078***	−0.023***	0.099***	0.054***	−0.204***	−0.029***	0.050***		−0.232***	0.407***	0.119***	−0.041***
LIQ	0.462***	0.054***	−0.027***	0.041***	−0.174***	−0.264***	−0.081***	−0.090***	−0.224***		−0.007	0.045***	0.137***
EBIT	−0.051***	−0.207***	0.021***	0.197***	−0.016***	−0.296***	−0.112***	0.189***	0.376***	0.029***		0.327***	0.037***
GROWTH	0.094***	−0.043***	0.043***	0.136***	0.008	−0.009	−0.027***	0.113***	0.083***	0.063***	0.263***		−0.035***
GOVINDEX	−0.033***	−0.005	−0.036***	−0.203***	−0.671***	−0.067***	−0.221***	−0.236***	−0.043***	0.152***	0.029***	−0.012	

Spearman correlations are provided in the upper right of the table and Pearson correlations to the lower left.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

Table 4
Monetary policy, accounting conservatism and trade credit.

Variables	TC _{<i>t</i>} (1)	TC _{<i>t</i>} (2)
C-Score _{<i>t-1</i>}	0.379*** (17.97)	0.178*** (10.71)
MP _{<i>t</i>} × C-Score _{<i>t-1</i>}		0.162*** (8.56)
MP _{<i>t</i>}		−0.007*** (−5.09)
MPOWER _{<i>t</i>}	0.047*** (10.79)	0.043*** (10.00)
STATE _{<i>t</i>}	0.013*** (2.60)	0.012** (2.46)
LOAN _{<i>t</i>}	−0.167*** (−11.91)	−0.156*** (−11.38)
AGE	0.009 (1.29)	0.008 (1.15)
SIZE _{<i>t</i>}	0.018*** (7.16)	0.019*** (8.73)
CFO _{<i>t</i>}	0.162*** (9.46)	0.160*** (9.29)
LIQ _{<i>t</i>}	0.250*** (22.15)	0.256*** (22.24)
EBIT _{<i>t</i>}	−0.392*** (−15.66)	−0.373*** (−14.88)
GROWTH _{<i>t</i>}	0.023*** (9.50)	0.024*** (10.08)
GOVINDE _{<i>t</i>}	−0.001 (−0.52)	0.000 (0.16)
Year	Yes	No
Industry	Yes	Yes
Cluster at firm level	Yes	Yes
<i>N</i>	12,121	12,121
Adj. <i>R</i> ²	0.449	0.432

Note: All of the coefficient estimates are adjusted using heteroskedasticity and company clustering to obtain robust standard errors.

Adjusted *t*-statistics are provided in brackets.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

5. Further discussion

5.1. Different company types: according to ownership and market position

Based on the alternative financing theory, companies that cannot obtain bank loans have to turn to trade credit, which mainly occurs for private enterprises in China. The existing research shows that China's banks exhibit clear "credit discrimination" against enterprises on the basis of ownership, with state-owned

enterprises enjoying more preferential credit policies (Lu et al., 2009; Jiang and Li, 2006). Even setting “ownership discrimination” aside, financial institutions demand higher interest rates or impose stiffer conditions for small and medium enterprises, and may even refuse to provide loans to avoid adverse selection and moral hazard, because the financial institutions are unable to fully appreciate the true situation of these enterprises. A survey suggests that guarantees, mortgages, financial transparency, corporate operating performance and other practical problems continue to restrict the financing of small businesses (Research Group of Center for Chinese Banking Studies in Central University of Finance and Economics, 2007). This prompts private enterprises to turn to suppliers or customers. Suppliers are willing to provide trade credit because they can detect changes in a company’s operation and credit situation in a timely fashion, and are able to encourage the company to abide by a contract through taking control of raw materials. However, in this case the cost of trade credit is generally high, most likely because the supplier requires the company to pay an insurance premium and a default premium to alleviate risk (Cunat, 2007). Thus, relative to state-owned enterprises, improving accounting conservatism may help a private enterprise to obtain trade credit.

Based on the market power theory, a company with a stronger market position will encourage suppliers or customers to take the initiative to provide trade credit, to promote sales or obtain supplies. However, suppliers or customers have no control over the company’s products or channels due to the company’s buyer market power over suppliers and seller market power over customers. In addition, individual suppliers or customers are unable to detect changes in the company’s operating conditions because the individual business volumes are too small. Therefore, suppliers and customers take advantage of accounting conservatism to provide protection for a trade credit contract. For a company with a strong market position, therefore, higher accounting conservatism provides greater benefits for suppliers and customers and makes more trade credit available to the company.

The overall sample is divided into four according to ownership and market position: state-owned enterprises with a weak market position, private enterprises with a weak market position, state-owned enterprises with a strong market position, and private enterprises with a strong market position. Using state-owned enterprises with a weak market position as the benchmark, the importance of accounting conservatism for different ownership and market position is examined.

In Table 5, $COMPANY_{MPOWER=0, STATE=0}$ represents private enterprises with a weak market position, $COMPANY_{MPOWER=1, STATE=1}$ represents state-owned enterprises with a strong market position and $COMPANY_{MPOWER=1, STATE=0}$ represents private enterprises with a strong market position. The coefficient for $C-Score_{t-1}$ indicates the effect of accounting conservatism on trade credit for state-owned enterprises with a weak market position. The coefficients for the three interactions with $C-Score_{t-1}$ indicate, relative to state-owned enterprises with a weak market position, the incremental effects of accounting conservatism on trade credit for the other three company types.

The results show that the coefficient for $C-Score_{t-1}$ is significantly positive, as are the coefficients for $COMPANY_{MPOWER=1, STATE=1} \times C-Score_{t-1}$ and $COMPANY_{MPOWER=1, STATE=0} \times C-Score_{t-1}$, in a period of monetary easing. Conversely, in a period of monetary tightening, only the coefficients for $C-Score_{t-1}$ and $COMPANY_{MPOWER=1, STATE=0} \times C-Score_{t-1}$ are significantly positive. This shows that even for state-owned enterprises with a weak market position, accounting conservatism is also significantly positive with respect to trade credit, and this positive correlation is particularly significant for private enterprises with a strong market position, especially under tight monetary policy.

5.2. Relationship between trading parties: related party vs. non-related party

In both alternative financing theory and market power theory, it is implicitly assumed that an independent relationship exists between a company and its suppliers or customers. Therefore, when suppliers or customers provide trade credit to the company, they will consider the company’s size, profitability, development prospects, ownership type, accounting information quality and so on, to ensure the protection of their interests. In practice, the company may have an associated relationship with the counterparty. A supplier may be the company’s parent company or subsidiary, or be controlled by the same parent company. Given the existence of such a relationship, the trading parties may have different motives when providing trade credit to the company.

Table 5

Monetary policy, accounting conservatism and trade credit: different company types.

Variables	TC _{<i>t</i>} Full sample (1)	TC _{<i>t</i>} Under loose monetary policy (2)	TC _{<i>t</i>} Under tight monetary policy (3)
C-Score _{<i>t-1</i>}	0.325*** (10.67)	0.281*** (8.46)	0.411*** (9.28)
COMPANY _{MPOWER_{<i>t</i>}=0, STATE_{<i>t</i>}=0} × C-Score _{<i>t-1</i>}	−0.010 (−0.27)	−0.026 (−0.62)	−0.009 (−0.17)
COMPANY _{MPOWER_{<i>t</i>}=1, STATE_{<i>t</i>}=1} × C-Score _{<i>t-1</i>}	0.106*** (2.85)	0.120*** (2.91)	0.080 (1.59)
COMPANY _{MPOWER_{<i>t</i>}=1, STATE_{<i>t</i>}=0} × C-Score _{<i>t-1</i>}	0.175*** (3.31)	0.170*** (2.70)	0.148** (2.05)
MPOWER _{<i>t</i>}	0.041*** (9.13)	0.040*** (8.56)	0.043*** (8.43)
STATE _{<i>t</i>}	0.014*** (2.69)	0.015*** (2.90)	0.012** (2.08)
LOAN _{<i>t</i>}	−0.167*** (−11.93)	−0.161*** (−11.34)	−0.178*** (−11.16)
AGE _{<i>t</i>}	0.009 (1.35)	0.014** (2.20)	−0.001 (−0.12)
SIZE _{<i>t</i>}	0.018*** (7.26)	0.019*** (7.54)	0.017*** (6.20)
CFO _{<i>t</i>}	0.163*** (9.53)	0.185*** (8.42)	0.141*** (6.18)
LIQ _{<i>t</i>}	0.249*** (22.16)	0.245*** (21.60)	0.251*** (20.06)
EBIT _{<i>t</i>}	−0.395*** (−15.85)	−0.413*** (−14.06)	−0.376*** (−12.52)
GROWTH _{<i>t</i>}	0.023*** (9.48)	0.022*** (6.58)	0.024*** (7.00)
GOVINDE _{<i>t</i>}	−0.001 (−0.54)	−0.001 (−0.73)	−0.000 (−0.02)
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes
<i>N</i>	12,121	6286	5835
Adj. <i>R</i> ²	0.451	0.448	0.456

Note: All of the coefficient estimates are adjusted using heteroskedasticity and company clustering to obtain robust standard errors.

Adjusted *t*-statistics are provided in brackets.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

Liu et al. (2009) contend that it is easy to develop trust between related enterprises through a contractual relationship, and that this type of relational trust may affect the choice of trade credit mode. Hong and Fang (2005) and Tong and Cheng (2007) also hold that the controlling shareholder of a listed corporation may exhibit supportive or tunneling behavior depending on the circumstances. By making supportive decisions, controlling shareholders can improve the stability of the company's earnings and thus improve the value of the

company. Therefore, based on a trust relationship, suppliers or customers may place less value on accounting conservatism and other operating features when providing trade credit. They may even offer trade credit to the company for supportive purposes, such as to help the company get through a period of financial strain.

Hence, we examine the effect of related transactions on the acquisition of trade credit. From the full sample we identify 7460 firm-year observations involved in related transactions, and divide trade credit into controlling shareholder trade credit, other related party trade credit and non-related party trade credit.³ Descriptive statistics show that the mean of overall trade credit is 18.4%, and the means of non-related party trade credit and related party trade credit are 17.1% and 1.3%, respectively. For related party trade credit, trade credit obtained from controlling shareholders and from other related parties averages 0.2% and 0.9%, respectively. With respect to scale, the amount of related party trade credit is far less than that of non-related party trade credit, and the amount of controlling shareholder trade credit is also lower than that of other related party trade credit.

Through regression analysis, we find significantly different results for controlling shareholder trade credit, related party trade credit and non-related party trade credit. In Table 6, the results are similar to Table 4 when non-related party trade credit is used as the dependent variable. The coefficients for $C\text{-Score}_{t-1}$ and $MP_t \times C\text{-Score}_{t-1}$ are significantly positive, while that for MP_t is negative. These results indicate that the higher the accounting conservatism, the more trade credit is available from non-related parties, and this is especially significant in a period of monetary tightening. When related party trade credit is used as the dependent variable, the coefficient for $C\text{-Score}_{t-1}$ is still significantly positive while those for $MP_t \times C\text{-Score}_{t-1}$ and MP_t are not significant, indicating that although accounting conservatism has an effect on the trade credit available from other related parties, this effect is not pronounced in a period of monetary tightening. When controlling shareholder trade credit is used as the dependent variable, the coefficients for $C\text{-Score}_{t-1}$ and $MP_t \times C\text{-Score}_{t-1}$ are not significant and that for MP_t is significantly positive at the 10% level. These results show that controlling shareholders do not focus on accounting conservatism, and even enhance their support of the company by loosening their credit policy during periods of monetary tightening.

5.3. Sensitivity testing

5.3.1. Endogeneity problem

In Hui et al. (2012), the bargaining power of an enterprise with respect to a supplier decides the level of accounting conservatism, but our results show that accounting conservatism influences trade credit provided by the supplier. This finding may indicate that there is a bi-directional association between accounting conservatism and trade credit, namely that accounting conservatism may be related to the residual term. As a company's accounting conservatism may remain stable over a period, merely lagging accounting conservatism may not solve the problem completely. To control for this endogeneity problem relating to accounting conservatism in H1, a company's short-term debt-paying ability (CR) is used as an instrumental variable to carry out two-stage least-squares regression and the results continue to support H1.

The instrumental variable is selected according to Petersen and Rajan (1997). They hold that when a supplier provides business credit, the main consideration is the actual operating conditions and the capacity for long-term development, and current solvency is not especially important. However, if company debt ratios greatly increase, banks will require companies to adopt more prudent accounting policies to protect the banks' own interests (Guay and Verrecchia, 2007). Therefore, we use short-term solvency as an instrumental variable, and carry out the under-identification test (Anderson canon. corr. LM statistic) and the weak-identification test (Cragg–Donald Wald F statistic). The results show that the instrumental variable is correlated with the endogenous variable.

³ According to the CSMAR related transaction database, other related parties that provide trade credit in the A-share market are mainly other enterprises controlled by the same parent company as the listed company (accounting for 62% of the total), associated enterprises of the listed company (4%), joint ventures of the listed company (2%) and investors who can exert a significant influence on the listed company (2%).

Table 6

Monetary policy, accounting conservatism and trade credit: related party transactions.

Variables	TC _{<i>t</i>} (controlling shareholder trade credit)		TC _{<i>t</i>} (other related-party trade credit)		TC _{<i>t</i>} (non-related party trade credit)	
	(1)	(2)	(3)	(4)	(5)	(6)
C-Score _{<i>t-1</i>}	0.002 (0.88)	0.003 (1.51)	0.020 ^{***} (4.23)	0.016 ^{***} (3.54)	0.377 ^{***} (15.08)	0.182 ^{***} (8.97)
MP _{<i>t</i>} × C-Score _{<i>t-1</i>}		-0.003 (-1.10)		-0.003 (-0.54)		0.176 ^{***} (7.27)
MP _{<i>t</i>}		0.000 [*] (1.88)		0.000 (0.95)		-0.008 ^{***} (-4.83)
MPOWER _{<i>t</i>}	0.000 (0.02)	0.000 (0.35)	0.003 ^{***} (2.95)	0.003 ^{***} (3.14)	0.040 ^{***} (7.54)	0.037 ^{***} (7.15)
STATE _{<i>t</i>}	0.001 ^{**} (2.31)	0.001 ^{**} (2.41)	0.000 (0.15)	0.000 (0.24)	0.012 ^{**} (1.96)	0.012 [*] (1.96)
LOAN _{<i>t</i>}	-0.002 ^{**} (-2.30)	-0.002 ^{**} (-2.09)	-0.015 ^{***} (-4.63)	-0.013 ^{***} (-4.34)	-0.169 ^{***} (-10.05)	-0.157 ^{***} (-9.49)
AGE	-0.001 (-1.41)	-0.001 (-1.09)	0.003 ^{**} (2.02)	0.003 ^{**} (2.24)	0.007 (0.80)	0.006 (0.71)
SIZE _{<i>t</i>}	0.000 (1.37)	0.000 (0.92)	0.001 (1.23)	0.001 (1.06)	0.016 ^{***} (5.46)	0.017 ^{***} (6.54)
CFO _{<i>t</i>}	0.001 (0.38)	0.001 (0.68)	0.010 ^{**} (2.20)	0.010 ^{**} (2.27)	0.128 ^{***} (6.15)	0.122 ^{***} (5.82)
LIQ _{<i>t</i>}	0.001 (0.86)	0.001 (0.82)	0.009 ^{***} (3.75)	0.010 ^{***} (3.82)	0.266 ^{***} (19.01)	0.272 ^{***} (19.10)
EBIT _{<i>t</i>}	-0.003 (-1.52)	-0.003 [*] (-1.74)	-0.038 ^{***} (-6.81)	-0.038 ^{***} (-6.72)	-0.404 ^{***} (-13.75)	-0.385 ^{***} (-13.10)
GROWTH _{<i>t</i>}	0.001 ^{**} (2.21)	0.001 ^{**} (2.37)	0.001 (1.34)	0.001 (1.59)	0.022 ^{***} (7.09)	0.024 ^{***} (7.72)
GOVINDE _{<i>t</i>}	-0.001 ^{***} (-4.82)	-0.001 ^{***} (-4.96)	-0.001 ^{***} (-3.01)	-0.001 ^{***} (-3.01)	0.002 (0.89)	0.003 (1.42)
Year	Yes	No	Yes	No	Yes	No
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes	Yes	Yes
N	7,460	7,460	7,460	7,460	7,460	7,460
Adj. R ²	0.037	0.036	0.052	0.050	0.468	0.454

Note: All of the coefficient estimates are adjusted using heteroskedasticity and company clustering to obtain robust standard errors.

Adjusted *t*-statistics are provided in brackets.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

5.3.2. Alternative variables for trade credit

To avoid industry factors affecting the results, the industry mean is subtracted from each company's trade credit in a sensitivity test, with the results provided in Table 7. The coefficient for C-Score_{*t-1*} is still significantly positive and that for MP_{*t*} × C-Score_{*t-1*} is also positive, which supports the hypotheses.

Although accounting conservatism is an annual variable, trade credit may include accounts payable and advances from customers from previous years. Therefore, in a sensitivity test, the sum of accounts payable, notes payable and advances from customers within a year is used to represent trade credit, standardized by

Table 7

Alternative variables for trade credit: adjusted by industry mean or within one year.

Variables	TC (trade credit adjusted by industry mean) (1)	TC (trade credit adjusted by industry mean) (2)	TC (trade credit within one year) (3)	TC (trade credit within one year) (4)
$C\text{-Score}_{t-1}$	0.375 ^{***} (18.07)	0.205 ^{***} (12.54)	0.186 ^{***} (8.58)	0.049 ^{***} (2.62)
$MP_t \times C\text{-Score}_{t-1}$		0.090 ^{***} (4.84)		0.081 ^{***} (3.35)
MP_t		−0.006 ^{***} (−4.31)		−0.003 (−1.46)
$MPOWER_t$	0.049 ^{***} (11.46)	0.047 ^{***} (11.26)	0.028 ^{***} (6.36)	0.025 ^{***} (5.79)
$STATE_t$	0.013 ^{**} (2.57)	0.013 ^{**} (2.56)	0.019 ^{***} (3.95)	0.020 ^{***} (3.95)
$LOAN_t$	−0.166 ^{***} (−12.00)	−0.148 ^{***} (−11.07)	−0.128 ^{***} (−10.26)	−0.120 ^{***} (−9.96)
AGE	0.007 (1.08)	0.010 (1.43)	0.005 (0.76)	0.003 (0.57)
$SIZE_t$	0.016 ^{***} (6.70)	0.015 ^{***} (7.09)	0.011 ^{***} (4.12)	0.013 ^{***} (5.39)
CFO_t	0.157 ^{***} (9.24)	0.154 ^{***} (9.02)	0.157 ^{***} (8.44)	0.155 ^{***} (8.22)
LIQ_t	0.244 ^{***} (22.05)	0.251 ^{***} (22.28)	0.146 ^{***} (13.56)	0.150 ^{***} (13.76)
$EBIT_t$	−0.383 ^{***} (−15.56)	−0.374 ^{***} (−15.15)	−0.191 ^{***} (−7.97)	−0.170 ^{***} (−7.10)
$GROWTH_t$	0.022 ^{***} (8.92)	0.024 ^{***} (10.07)	0.011 ^{***} (4.20)	0.011 ^{***} (4.48)
$GOVINDEX_t$	−0.001 (−0.39)	−0.001 (−0.33)	0.001 (0.48)	0.002 (1.19)
Year	Yes	No	Yes	No
Industry	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes
N	12,121	12,121	5392	5392
Adj. R^2	0.344	0.331	0.385	0.366

Note: All of the coefficient estimates are adjusted using heteroskedasticity and company clustering to obtain robust standard errors.

Adjusted t -statistics are provided in brackets.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

total assets. The results are shown in Table 7. The coefficients for $C\text{-Score}_{t-1}$ and $MP_t \times C\text{-Score}_{t-1}$ are still significantly positive, which supports the hypotheses.

5.3.3. Alternative variables for tight monetary policy

Since the first quarter of 2004, the website of the People's Bank of China has published a quarterly "national banker survey report" on systematic investigations carried out jointly by the People's Bank of China and the National Bureau of Statistics. About 3000 banking institutions are investigated through a

Table 8

Alternative variables for tight monetary policy: monetary policy tightness index..

Variables	TC (original MPINDEX) (1)	TC (original MPINDEX) (2)	TC (dummy MPINDEX) (3)	TC (dummy MPINDEX) (4)
C-Score _{<i>t-1</i>}	0.500*** (18.73)	0.209*** (7.32)	0.500*** (18.73)	0.271*** (13.73)
MP _{<i>t</i>} × C-Score _{<i>t-1</i>}		0.387*** (4.25)		0.070*** (2.61)
MP _{<i>t</i>}		-0.052*** (-8.84)		-0.004** (-2.25)
MPOWER _{<i>t</i>}	0.048*** (9.80)	0.044*** (8.79)	0.048*** (9.80)	0.044*** (8.68)
STATE _{<i>t</i>}	0.005 (0.94)	0.006 (0.93)	0.005 (0.94)	0.005 (0.91)
LOAN _{<i>t</i>}	-0.203*** (-11.87)	-0.170*** (-10.30)	-0.203*** (-11.87)	-0.168*** (-10.13)
AGE	-0.010 (-0.97)	-0.009 (-0.83)	-0.010 (-0.97)	-0.010 (-0.98)
SIZE _{<i>t</i>}	0.022*** (7.44)	0.022*** (7.58)	0.022*** (7.44)	0.022*** (7.60)
CFO _{<i>t</i>}	0.128*** (6.29)	0.124*** (5.91)	0.128*** (6.29)	0.131*** (6.24)
LIQ _{<i>t</i>}	0.237*** (18.92)	0.249*** (19.09)	0.237*** (18.92)	0.252*** (19.20)
EBIT _{<i>t</i>}	-0.291*** (-10.75)	-0.287*** (-10.41)	-0.291*** (-10.75)	-0.289*** (-10.48)
GROWTH _{<i>t</i>}	0.023*** (6.71)	0.025*** (7.25)	0.023*** (6.71)	0.023*** (6.85)
GOVINDEX _{<i>t</i>}	-0.000 (-0.03)	0.002 (0.63)	-0.000 (-0.03)	0.002 (0.79)
Year	Yes	No	Yes	No
Industry	Yes	Yes	Yes	Yes
Cluster at firm level	Yes	Yes	Yes	Yes
<i>N</i>	6743	6743	6743	6743
Adj. <i>R</i> ²	0.472	0.447	0.472	0.444

Note: All of the coefficient estimates are adjusted using heteroskedasticity and company clustering to obtain robust standard errors.

Adjusted *t*-statistics are provided in brackets.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

combination of overall investigation and sampling surveys. The overall investigation is used for all types of institutions at municipal level or above, while a stratified PPS sampling survey (proportional to the scale of each credit cooperative) is used to investigate rural credit cooperatives. The respondents include directors of headquarters and presidents and vice presidents in charge of credit at provincial and secondary-level branch institutions in various banking institutions (including foreign commercial banks). The report gives the proportion of investigated bankers who believe that current monetary policy is “loose,” “moderate” or “tight.” Here,

Table 9
Alternative variable for accounting conservatism: average C-Score.

Variables	Coefficient	Adjusted <i>t</i> -statistic
MEAN_C-Score	0.954***	(15.53)
MEAN_MPOWER	0.059***	(10.17)
MEAN_STATE	0.021***	(4.48)
MEAN_LOAN	−0.144***	(−7.31)
MEAN_AGE	0.010**	(2.14)
MEAN_SIZE	0.004	(1.43)
MEAN_CFO	0.194***	(3.12)
MEAN_LIQ	0.213***	(15.27)
MEAN_EBIT	−0.361***	(−5.18)
MEAN_GROWTH	0.000	(0.23)
MEAN_GOVINDEX	−0.002	(−1.48)
Industry	Yes	
N	2134	
Adj. <i>R</i> ²	0.501	

Note: All of the coefficient estimates are adjusted using heteroskedasticity to obtain robust standard errors.

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

a “tightness” index (MPINDEX) is used to measure the tightness of monetary policy rather than indicators based on monetary liquidity.⁴

For each year between 2004 and 2009, the monetary policy tightness index is 37.53%, 18.95%, 18.98%, 39.63%, 51.03% and 5.03%, respectively. Based on the original value of the monetary policy tightness index (MPINDEX), we define 2004, 2007 and 2008 as years with tightening monetary policy and 2005, 2006 and 2009 as years with easing monetary policy, substituting a dummy variable into the regression equation.

The results are shown in Table 8. The coefficients for $C-Score_{t-1}$ and $MPINDEX_t \times C-Score_{t-1}$ are significantly positive, confirming the hypotheses.

5.3.4. Alternative variable for accounting conservatism

To avoid error in measuring accounting conservatism, we average the values for C-Score in 2003–2012 to obtain an average conservatism index. To maintain unity, the average values of the other variables are also calculated, giving data for 2134 companies. The results of the regression analysis using these values are shown in Table 9. The coefficient for MEAN_C-Score is significantly positive, indicating that H1 is still supported.

6. Conclusions

Using a sample of A-share listed firms in China during 2003–2012, we investigate the effect of accounting conservatism on trade credit, taking the effect of monetary policy into account. The results show that corporations with higher accounting conservatism obtain more trade credit, and this relationship becomes more positive under tight monetary policy.

After grouping the enterprises by market position and ownership type, the positive correlation between accounting conservatism and trade credit is most significant for a private company with a strong market position. However, when the suppliers and customers are grouped according to transaction relationships, the positive correlation between accounting conservatism and trade credit is no longer significant if the trading party is a controlling shareholder.

⁴ Between the first quarter of 2004 and the third quarter of 2006, the report categorizes beliefs about current monetary policy into “too loose,” “loose,” “moderate,” “tight” or “too tight.” It drops the “too tight” category from the fourth quarter of 2006, and reports beliefs only as “moderate” since the first quarter of 2010. Hence, a “tightness” index is used to measure the degree of monetary tightening, and the sample window is narrowed to 2004–2009.

The conclusions show that accounting conservatism can reduce the degree of information asymmetry, protect the interests of suppliers and customers more effectively, and help both parties to contract to establish cooperative relations with mutual trust, such that suppliers and customers are willing to accept a certain degree of risk and provide more trade credit. These effects are particularly significant in private enterprises with a strong market position.

References

- Ahmed, A.S., Duellman, S., 2011. Evidence on the role of accounting conservatism in monitoring managers' investment decisions. *Acc. Finance* 51, 609–633.
- Bai, C.E., Liu, Q., Lu, J., Song, M., Zhang, J.X., 2005. An empirical study on Chinese listed firms' corporate governance. *Econ. Res. J.* 2, 81–91 (in Chinese).
- Baks, K., Kramer, C., 1999. Global liquidity and asset prices: measurement, implications, and spillovers. IMF Working Papers. Available at SSRN: <http://ssrn.com/abstract=880823>.
- Ball, R., Shivakumar, L., 2005. Earnings quality in UK private firms: comparative loss recognition timeliness. *J. Acc. Econ.* 39, 83–128.
- Basu, S., 1997. The conservatism principle and the asymmetric timeliness of earnings. *J. Acc. Econ.* 24, 3–37.
- Beaudry, P., Caglayan, M., Schiantarelli, F., 2001. Monetary instability, the predictability of prices, and the allocation of investment: an empirical investigation using UK panel data. *Am. Econ. Rev.* 91, 648–662.
- Beaver, W.H., Ryan, S.G., 2000. Biases and lags in book value and their effects on the ability of the book-to-market ratio to predict book return on equity. *J. Accounting Res* 38 (1), 127–148.
- Biais, B., Gollier, C., 1997. Trade credit and credit rationing. *Rev. Financial Stud.* 10 (4), 903–937.
- Cheng, L.B., Liu, F., 2013. Bank supervision and discrimination: from the perspective of accounting conservatism. *Acc. Res.* 1, 28–34 (in Chinese).
- Cunat, V., 2007. Trade credit: suppliers and debt collectors as insurance providers. *Rev. Financial Stud.* 20, 491–527.
- Fisman, R., Raturi, M., 2004. Does competition encourage credit provision? Evidence from African trade credit relationships. *Rev. Econ. Stat.* 86, 345–352.
- Garcia Lara, J.M., Garcia Osma, B., Penalva, F., 2011. Conditional conservatism and cost of capital. *Rev. Acc. Stud.* 16 (2), 247–271.
- Gertler, M., Gilchrist, S., 1994. Monetary policy, business cycles, and the behavior of small manufacturing firms. *Quart. J. Econ.* 109, 309–340.
- Givoly, D., Hayn, C., 2000. The changing time-series properties of earnings, cash flows and accruals: has financial reporting become more conservative? *J. Acc. Econ.* 29 (3), 287–320.
- Guay, W.R., Verrecchia, R.E., 2007. Conservative disclosure. Available at SSRN: <http://ssrn.com/abstract=995562>.
- Hong, J.Q., Fang, J.X., 2005. Related party sales and the informativeness of accounting earnings. *China Acc. Rev.* 1, 87–98 (in Chinese).
- Hui, K.W., Klasa, S., Yeung, P.E., 2012. Corporate suppliers and customers and accounting conservatism. *J. Acc. Econ.* 53, 115–135.
- Jiang, G.H., Zhang, R., 2007. Conservatism or fair value: an analysis based on stock price reactions. *Acc. Res.* 6, 20–25 (in Chinese).
- Jiang, W., Li, B., 2006. Institutional environment, state-owned property and bank-lending discrimination. *J. Financial Res.* 11, 116–126 (in Chinese).
- Kashyap, A.K., Stein, J.C., Wilcox, D.W., 1993. Monetary policy and credit conditions: evidence from the composition of external finance. *Am. Econ. Rev.* 86 (1), 310–314.
- Khan, M., Watts, R., 2009. Estimation and empirical properties of a firm-year measure of accounting conservatism. *J. Acc. Econ.* 48, 132–150.
- Kohler, M., Britton, E., Yates, A., 2000. Trade credit and the monetary transmission mechanism. The Bank of England Working Paper No. 115. Available at SSRN: <http://ssrn.com/abstract=234693>.
- Li, Z.J., Wang, S.P., 2011. Monetary policy, information disclosure quality and corporate debt financing. *Acc. Res.* 10, 56–62 (in Chinese).
- Liu, F.W., Li, L., Xue, Y.K., 2009. Trust, transaction cost and mode of trade credit. *Econ. Res. J.* 8, 130–133 (in Chinese).
- Lu, Z.F., Yang, D.M., 2011. Commercial credit: alternative financing or buyers' markets? *Manage. World* 4, 6–14 (in Chinese).
- Lu, Z.F., Zhu, J.G., Fan, Z., 2009. Monetary contraction, bank discrimination and investor losses in the non-state listed companies. *J. Financial Res.* 8, 124–136 (in Chinese).
- Macro Group, CCER, PKU, 2008. The measurement of liquidity and the relationship between monetary liquidity and asset price. *J. Financial Res.* 9, 44–55 (in Chinese).
- Mojon, B., Smets, F., Vermeulen, P., 2002. Investment and monetary policy in the euro area. *J. Bank. Finance* 26 (11), 2111–2129.
- Petersen, M.A., Rajan, R.G., 1997. Trade credit: theory and evidence. *Rev. Financial Stud.* 10, 661–691.
- Rajan, R.G., Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. *J. Finance* 50, 1421–1460.
- Rao, P.G., Jiang, G.H., 2011. Monetary policy changes, bank credits and accounting conservatism. *J. Financial Res.* 3, 51–71 (in Chinese).
- Research Group of Center for Chinese Banking Studies in Central University of Finance and Economics, 2007. Why it's difficult for small enterprises to apply for loans—a survey on the service status of financial institutions. *China Economic Times* 6 (in Chinese).
- Summers, B., Wilson, N., 1999. An empirical investigation of trade credit use: a note. A Report from the Credit Management Research Centre of Leeds University Business School.

- Tong, Y., Cheng, X.K., 2007. The interest flow direction of transactions between related parties and the earning quality of China's listed companies. *Manage. World* 11, 127–138 (in Chinese).
- Van Horen, N., 2005. Do firms use trade credit as a competitiveness tool? Evidence from developing countries. *World Bank Working Paper*.
- Watts, R.L., 2003. Conservatism in accounting. Part I: explanations and implications. *Acc. Horizon* 17, 207–221.
- Williamson, O.E., 1979. Transaction cost economics: the governance of contractual relations. *J. Law Econ.* 22, 233–261.
- Ye, K.T., Zhu, J.G., 2009. Between short money supply and the allocation of credit resources. *Manage. World* 1, 22–28 (in Chinese).
- Yi, G., 1991. The monetization process in China during the economic reform. *China Econ. Rev.* 2 (1), 75–95.
- Zhang, H.L., Lu, Z.F., 2012. Cash distribution, corporate governance, and over-investment: an investigation based on the state of the cash holdings of China's listed companies and their subsidiaries. *Manage. World* 3, 141–150 (in Chinese).
- Zhang, J., 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *J. Acc. Econ.* 45, 27–54.
- Zhang, X.M., Wang, Y., Zhu, J.G., 2012. Market power, trade credit and business financing. *Acc. Res.* 8, 58–65 (in Chinese).
- Zhu, J.G., 2011. Accounting conservatism and protection of creditors' interests: a research based on lawsuits between banks and listed companies. *Acc. Res.* 5, 50–57 (in Chinese).